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AN EXAMINATION SYSTEM AUTOMATION USING NATURAL LANGUAGE PROCESSING

P.L.V.V.VYSHNAVI[1], G.RAMESH KUMAR [2]

[1]MCA Student, B V Raju College, Kovvada, Andhra Pradesh, India.

[2]Assistant Professor, B V Raju College, Kovvada, Andhra Pradesh, India.

Abstract **-** This world has seen a lot many examination portals that are deployed over several servers which are used to conduct online examination for various purposes amongm which some may include conducting a test for entrance examinations, or olympiads at national and international level and while some portals are designed to conduct a test for placement purposes. But what we have seen is that mostly all the portals are designed to conduct tests that contain multiple choice questions. Here our aim is not to work on the technology that already exists, rather some technology that is very rare. Here we talk of the descriptive online examination system. Multiple choice questions are easy to deal as they have a question, a few options and a field in the same question that stores the correct option in the database. While in the case of descriptive questions it is not so. It brings in or uses the concepts of Natural Language Processing or NLP to assign marks to answers. Answers are nothing but strings and the job of the model is to do some operations on the answer string such that it can assign the correct marks to answers written by the examinee. The data is basically collected from a descriptive online examination system. Further, it is analyzed and the designed model assigns accurate marks to the answers for the question. The back end is written in Python where the web framework used is Django, the library used for Natural Language Processing includes NLTK and for database purpose, SQLite version 3 is used, while for the front-end HTML version-5, CSS version-3, Bootstrap and JavaScript is used.

Keywords:HTML, NLTK, CSS, SQL, NLP.

I.INTRODUCTION

We come to hear news from around the globe that a particular exam was conducted for a job or for a college or examination in schools and the result was published after some time, while this is a good way to conduct an exam but it is inefficient with respect to the current world where automation is the future. The

examination system relies on manual work from printing to transporting the paper to the examination hall, then invigilation and the most tedious task of checking the answer sheets which is a huge mess for any examiner which sometimes leads to resource loss. Also, we hear news about paper leaks and answer sheet being lost in the transporting process. The manual checking process will always have that human error based on certain factors like biasing, the mood of the examiner, target completion and much more such factors. Also if we take account of all the paper wastage and the stationary waste which harms our environment leading to do more bad then good as the enormous amount of trees being chopped off across the world for the process. This helps us understand that the offline examination system is not cost effective or time efficient, resources are also wasted in the process and moreover we all know that resources are scarce in nature and we need to utilize it efficiently to get the maximum output of it. While the offline examination system has a big disadvantage but are not getting replaced at a bigger scale because new online examination system features only multiple-choice type of question's while most of the exams contain descriptive question for which multiple choice answers do not work and hence they are not thatcompatible and efficient to replace it at a larger level. We all know that if we have to remove a universally accepted system, the new system should not be just good, rather it should be able to make a quality difference so that the organizations accept it. While there are some examination system and they are good at evaluating the answers but they have little to no scope for the descriptive ones and the analysis is not well implemented to get meaningful results. Evenmost famous of them just have a simple system of storing the correct options in the database and just matching the correct option with it to calculate the result. In the proposed model we are taking the online examination system to a new level by enabling the examinee to write descriptive answers which will get evaluated on their own i.e automating the entire offline examination system with the efficiency of computing having no human error involved, this can be done using NLP or Natural Language Processing. The evaluated answers will be stored in the database and they can be viewed anytime and a particular student profile will be maintained for better evaluation of the student. This will be a huge boost to the online examination system as this will allow it to overcome its biggest con and

it will also help the online examination system to stretch its paw even in the half-yearly or annual examination conducted by schools orcollege for evaluating the profile of the student. This will have instant benefits like the system will relieve the burden of the teachers and professors of checking copies and in return they can be more productive with their time in teaching things, this will also eliminate biasing in answer script checking and will have leased space for any human error as copies would not be scanned and the entire marks will be allotted according to the way answers are written by the examinee while he was on and there will be little to no space for acquisition, it will help in resource management as this will cut corners on stationery products, it will also have greater efficiency with respect to time as it will produce instantaneous results and will be more secureand reliable.

Talking about the technology used in order to build such a model for evaluating descriptive answers, NLP or Natural Language Processing is has a great role to play. NLP can do a lot of innovative jobs like predicting if a message or an email is a spam or a ham, the quality search that we can do on shopping websites like www.amazon.in and www.flipkart.com in order to search for different categories of items that include kitchen utensils, electronics gadget,apparels, food items and much more such products that are availableonline.

II. LITERATURE SURVEY

1. Detection of users suspected of using multiple user accounts and manipulating evaluations in a community site

AUTHORS: N. Ishikawa, K. Umemoto, Y. Watanabe. Some users in a community site abuse the anonymity and attempt to manipulate communications in a community site. These users and their submissions discourage other users, keep them from retrieving good communication records, and decrease the credibility of the communication site. To solve thisproblem, we conducted an experimental study to detect users suspected of using multiple user accounts and manipulating evaluations in a community site. In this study, we used messages in the data of Yahoo! chiebukuro for data training and examination.

2. Automated Online Exam Proctoring" IEEE Transactions on Multimedia.

AUTHORS: Y. Atoum, L. Chen, A. X. Liu, S. D. H. Hsu, and X. Liu This study found journalists use government sites mostoften to retrieve information. Problems include difficulty with verification, unreliable

information andlack of contact information.

3. Design of Paperless Examination System for Principles of Database Systems

AUTHORS: G. Zhang, and H. Ke

Paperless examination is an important role of modern education, which can effectively reduce the teachers' workload and improve work efficiency. However, the current paperless examination system mainly deals with the objective questions, it is almost impossible to deal with subjective questions such as programming languages, particular in SQL. There is no such practical system as far as know. This article describes a novel SQL-based paperless examination system, including objective questions as well as SQL programming questions.

4. Task Based Automatic Examination System for Sequenced Test

AUTHORS: S. Luo, J. Hu and Z. Chen

Computers greatly influence our educational environment. Over the last years, automatic computer examination systems have been widely used for computer-based tests. But these systems are based on traditional question-answer examination style which is not fit for the sequenced test. The sequenced test should consider the context of the examinee, e.g. the order of questions or the permissions of the examinee, to grade an examinee. In this paper, we propose effective and practical automatic examination architecture based on task. The task is abstracted from the examination process and can meet the requests of the sequenced test, such as order and dependency. At the end of the paper, we implement an automatic examination system based on task for the stake test which proves quite efficient in practice.

EXISTING SYSTEM:

This world has seen a lot many examination portals that are deployed over several servers which are used to conduct online examination for various purposes among which some may include conducting a test for entrance examinations, or olympiads at national and international level and while some portals are designed to conduct a test for placement purposes. But what we have seen is that mostly all the portals are designed to conduct tests that contain multiple choice questions.

DISADVANTAGES OF EXISTING SYSTEM:

- Offline examination system.
- Online examination system features only multiplechoice type of question's.
- Low Efficiency.

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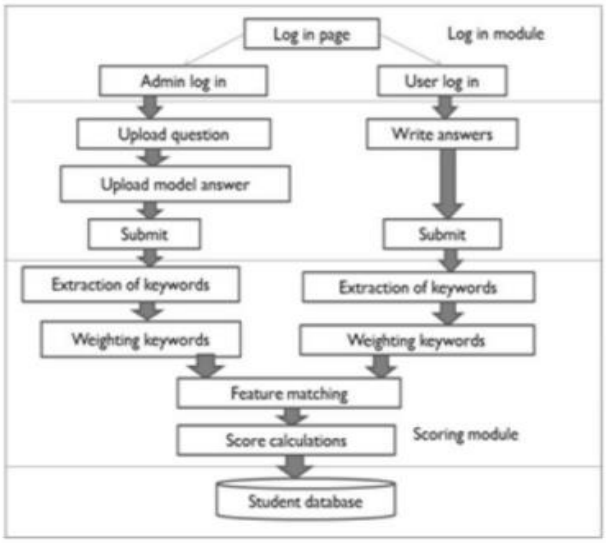
PROPOSED SYSTEM:

In the proposed model we are taking the online examination system to a new level by enabling the examinee to write descriptive answers which will get evaluated on their own The evaluated answers will be stored in the database and they can be viewed anytime and a particular student profile will be maintained for better evaluation of the student. Talking about the technology used in order to build such a model for evaluating descriptive answers, NLP or Natural Language Processing is has a great role to play.

ADVANTAGES OF PROPOSED SYSTEM:

- High Efficiency.
- Online descriptive examinations system.
- Answers are evaluated at that moment itself and the student can see the solutions and can correct the mistakes or errors committed while appearingfor the exam.

SYSTEM DESIGNSYSTEM ARCHITECTURE:



System Architecture

DATA FLOW DIAGRAM:

- The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on thisdata, and the output data is generated by thissystem.
- The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components.
- DFD shows how the information moves through the system and how it is modified by a series of transformations.
- DFD is also known as bubble chart. A DFD may be used to represent a system at any level ofabstraction.

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Data Flow Diagram

III. TESTING

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive. A strategy for software testing integrates software test case design methods into a well- planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems. The following are the Testing Objectives: Testing is a process of executing a program with the intent of finding an error.□ A goodtest has a high probability of finding an as yet undiscovered error. A successful test is one that uncovers an as yet undiscovered error.

IV. FUTURE ENCHANCEMENT

The future works on it, it can be tracked using the system that which student has cheated from any other student. For the purpose of tracking the system will again use the concepts of Machine Learning and Data Science to work upon these

V. CONCLUSION

It can be seen by conducting tests using such an algorithm at regular intervals that one can determine the trend in the marks obtained by different students and we can give them an analyzed report on the different subjects they need to focus on for which they are weak. With the existing data, we can also implement a predictive machine learning model on the data so that it can predict marks that the students will score in the future. It is observed that students mainly study those subjects that are placement oriented or which are required for placement purpose only. While students neglect the subjects of their core domain. Deep knowledge in the domain is required as it is of no use to study if you do not have a core domain knowledge. So it can help students get quality knowledge as everything will be digital and there will be no

cumbersome process of conducting a pen-papertest. Also, answers are evaluated at that moment itself and the student can see the solutions and can correct the mistakes or errors committed while appearing for the exam.

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